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**UNIVERSITI KUALA LUMPUR**

**ASSESSMENT BRIEF**

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| **COURSE DETAILS** | |
| **INSTITUTE** | UniKL MIIT |
| **COURSE NAME** | PRINCIPLE OF ARTIFICIAL INTELLIGENCE |
| **COURSE CODE** | ISB46703 |
| **COURSE LEADER** | AHMAD ZHAFRI HARIZ BIN ROSLAN |
| **LECTURER** | AHMAD ZHAFRI HARIZ BIN ROSLAN |
| **SEMESTER & YEAR** | MARCH 2024 |

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| **ASSESSMENT DETAILS** | |
| **TITLE/NAME** | PROJECT |
| **WEIGHTING** | 20% |
| **DATE/DEADLINE** | WEEK 14 |
| **COURSE LEARNING OUTCOME(S)** | CLO1: Identify characteristics of programs that can be considered as intelligent.  CLO2: Apply appropriate searching techniques in achieving desired goal.  CLO3: Represent knowledge using various techniques. |
| **INSTRUCTIONS** | * Students must form a group of 2 to 3 students per group. * Each group must assign 3 different roles among their groupmates:   + Data Engineer   + Data Scientist   + Data Analyst * For every roles, they are task to do different things:   + Data Engineer : Data preparation     - Collecting data     - Standardize data     - Creating dataset   + Data Scientist : Data Modelling     - Creating neural network model     - Training the model     - Perform hyperparameter tuning (transfer learning)   + Data Analyst : Data visualization     - Visual the dataset to identify the class and labels     - Understand the dataset to achieve the goals     - Visualize the performance of the training model * After assigning the roles to each members, each group must prepare their dataset according to the following domain:   + Forestry   + Medical imaging   + Agriculture health   + Animal subspecies   + Plant subspecies * Using the domain collect and prepare your dataset:   + Use a web crawler tools to find up to 10,000 images.   + Have at least 3 classes (the more the better) up to 10 classes.   + Split the dataset to training, validation, and testing dataset. * Data Modelling   + Use 3 different CNNs; ResNet50, Dense121, MobileNetv3.   + These 3 networks are available within the Keras library.   + Train these networks for 50 epochs each.   + Additionally, use 2 metrics to observe the performance of your models (accuracy and mAP (mean average precision)   + Record the training time for each model * Data Visualization   + Visualize the performance of the every models.     - Show the graphs for model loss and accuracy.     - Display the evaluation using confusion matrix     - Evaluate the performance of the model against the testing dataset.     - Draw your final conclusion on which model is the best suited for this classification task.     - Consider the model’s parameter, accuracy, mAP, and training time in your conclusion.   + Prepare a 5 minute presentation to show your results. |
| **DELIVERABLES** | * Each group must create a GitHub account. * In the account, upload all materials (dataset, notebooks, miscellaneous). * Provide the link to the your GitHub account in VLE submission. * Presentation must be done during class and all team members must be present. |
| **RUBRIC SCORE** | |  |  | | --- | --- | | **Agenda** | **Score** | | Data preparation:   * Collecting data * Standardize data * Creating dataset | 6 | | Data Modelling:   * Creating neural network model * Training the model * Perform hyperparameter tuning (transfer learning) | 6 | | Data Visualization:   * Show the graphs for model loss and accuracy. * Display the evaluation using confusion matrix * Evaluate the performance of the model against the testing dataset. * Draw your final conclusion on which model is the best suited for this classification task. * Consider the model’s parameter, accuracy, mAP, and training time in your conclusion. | 7 | | Presentation | 1 | | Total | 20 | |